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Redwire Pioneering Biopharma Production in Space by Successfully Bioprinting Live Human Heart Tissue and Delivering Second Batch of PIL-BOX Pharmaceutical Crystal Experiments

JACKSONVILLE, Fla.--(BUSINESS WIRE)-- Redwire Corporation (NYSE: RDW), a leader in space infrastructure for the next generation space economy, announced today that it has successfully 3D bioprinted the first live human heart tissue sample though its 3D BioFabrication Facility (BFF) onboard the International Space Station (ISS). The tissue sample returned to Earth along with the second batch of pharmaceutical crystal experiments from Redwire's PIL-BOX platform.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20240507667003/en/

Live human heart tissue bioprinted with Redwire's BioFabrication Facility onboard the International Space Station. The tissue successfully returned to Earth in April 2024. Image: Redwire

Redwire's space biotech capabilities are creating valuable opportunities for the biopharma industry as microgravity allows for outcomes that aren't possible on Earth, including bioprinting materials that form and hold a three-dimensional shape without the use of scaffolds or additional chemical support. It is also possible to grow larger and more-highly-ordered pharmaceutical crystals in microgravity. Understanding crystal growth and design can inform the entire drug discovery, development, and design process for small molecule and large biomolecule pharmaceuticals as companies look to deliver new, optimized treatments to help patients.

"These are extraordinary scientific achievements that bring us closer to reliable, large-scale commercial biotech services on-orbit," said Redwire In-Space Industries President John Vellinger. "With BFF and PIL-BOX, Redwire has leveraged decades of spaceflight heritage to position itself as a market leader for space biotech capabilities and is now setting the pace for on-orbit contract development and production."

Live human heart tissue bioprinted on Redwire's BFF could eventually be used to create heart patches as a treatment for damaged heart tissue and opens the door to more effective, personalized medicine. The tissue sample is now undergoing further testing at Redwire's facility in Greenville, Indiana. On the next BFF mission, Redwire plans to 3D bioprint human blood vessels in space.

Redwire's second batch of returned PIL-BOX experiments comprised of 36 crystal

experiments, which included various crystal molecules designed for pharmaceutical use, with antiviral, antifungal, and antiseizure applications. These returned crystal experiments were led by Redwire and Butler University.

Redwire recently partnered with Eli Lilly and Co. for a second spaceflight investigation, which launched in March 2024. The Lilly crystal experiments are expected to return to Earth in a Dragon capsule onboard the Crew-8 mission which is currently targeting August 2024. There are 16 upcoming investigations planned for PIL-BOX, with samples launching to the ISS and returning to Earth on every upcoming commercial resupply mission.

The PIL-02 and PIL-03 investigations have validated Redwire's ability to consistently provide pharmaceutical researchers with a reliable platform to manufacture a variety of crystals in space and bring them down quickly in a repeatable and scalable process.

BFF and PIL-BOX are part of Redwire's expansive array of space biotech and microgravity development platforms that make use of the space environment to improve life on Earth. Redwire has developed 20 research facilities for crewed spacecraft, with 10 currently aboard the ISS supporting world-leading research and manufacturing missions.

About Redwire

Redwire Corporation (NYSE:RDW) is a global space infrastructure and innovation company enabling civil, commercial, and national security programs. Redwire's proven and reliable capabilities include avionics, sensors, power solutions, critical structures, mechanisms, radio frequency systems, platforms, missions, and microgravity payloads. Redwire combines decades of flight heritage and proven experience with an agile and innovative culture. Redwire's approximately 700 employees, working from 14 facilities located throughout the United States and Europe, are committed to building a bold future in space for humanity, pushing the envelope of discovery and science while creating a better world on Earth. For more information, please visit redwirespace.com.

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